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NATURAL RESOURCES

CLEON B. FEIGHT
Director

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
Salt Lake City, Utah 84116
(801) 533-5771

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M E M O R A N D U M
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To: The Board of Oil, Gas, and Mining
From: James W. Smith, Jr. *JWS*
Reclamation Soils Specialist
Subject: Energy Fuels Nuclear, Inc.
Sahara Mine
Emery County, Utah
ACT/015/026
Date: June 20, 1979

The Division staff has reviewed the Mining and Reclamation Plan submitted by Energy Fuels Nuclear, Inc. for the Sahara Mine and feels that the plan meets the requirements of the Utah Mined Land Reclamation Act. The Division seeks the Board's concurrence to grant tentative approval and the Board's opinion on the form and amount of surety. An Executive Summary and Surety Estimate are attached for your review.

JWS/pf
Enc: Executive Summary and Surety Estimate

EXECUTIVE SUMMARY

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Energy Fuels Nuclear

Sahara Mine

ACT/015/026

Section 15, Township 22 South, Range 14 East

Emery County, Utah

LOCATION:

This underground uranium mine site is located approximately 12 miles southwest of Green River, just south of Interstate 70 along Highway 24 in Section 15, Township 22 South, Range 14 East, Emery County. Although this will be a new operation, the area has been mined in the past and is currently being mined on the adjacent Watterson claims immediately south of the Sahara claims. Refer to the attached map for exact location.

SOILS AND GEOLOGY:

Mining will take place in the Salt Wash member of the Morrison formation. Soils in the area are shallow, having a sandy clay texture and an alkaline pH. The soils are generally well drained, permeability is moderate to slow, runoff is rapid, and sediment production is high.

HYDROLOGY:

The normal average annual precipitation for this area is approximately 6 inches. Runoff from the surface facilities should not be a problem since the operation will be located at the base of a steep mesa and the area between the mine-site and the San Rafael River is relatively flat, being bisected by Highway 24. Mine water is expected to be encountered as evidenced by exploration drilling, so Energy Fuels Nuclear has applied for an N.P.D.E.S. permit and has contacted State Health for their requirements in treating any mine water discharge. As of this date neither the Division nor the Bureau of Water Quality has received any specific treatment plans other than the location of the two proposed treatment ponds.

ECOLOGY:

Vegetation in the area is generally sparse. However, due to the abnormally wet year a diversity of species was noted during the field investigation. Species observed were broom snakeweed, ephedra, shadscale, sagebrush, fourwing saltbush, greasewood, Indian ricegrass, sand dropseed, galletagrass, globe mallow, Russian thistle, evening primrose, and several species of astragalus and mustard. The principal use of the area is rangeland, which would have a very low stocking capacity.

STRUCTURES AND FACILITIES:

The mine site will entail a surface disturbance of approximately 20 acres; of which 13.5 acres will be for support facilities, 1.5 acres will be for access roads, and 5.0 acres will be for the drainage system and mine water treatment ponds. The surface facilities will include a pad supporting a shop, dry, and office buildings; a compressor; fuels, oil, and water tanks; a waste rock dump; an ore stockpile; a topsoil stockpile; and a sewage treatment system. In addition there will be a single 3000 foot incline to the ore body, two future vent holes, and the aforementioned access roads, treatment ponds, and diversion ditch. Mining will be underground room and pillar and open stoping utilizing trackless vehicles for waste and ore transport out of the mine. The ore will be hauled by truck to their proposed mill in Blanding.

MINING AND RECLAMATION:

Energy Fuels Nuclear, Inc. has committed to the following:

During Operations:

1. Mining will be conducted in a safe, orderly, and minerlike fashion and in such a manner as to minimize visual and environmental degradation.
2. Prior to the construction, available topsoil will be removed and stockpiled for redistribution on disturbed surface areas at the time of reclamation.
3. Mining will be underground room and pillar and open stoping, and will disturb approximately 20 acres of surface area for support facilities, including access roads and mine water treatment ponds.
4. Mine water encountered will be treated with barium chloride prior to release from the treatment ponds.
5. Ore will be stockpiled at the mine site until it can be trucked to the proposed mill in Blanding.
6. Revegetation test plots will be established to determine the need for soil amendments, special revegetation techniques, and exact species to be used in final reclamation of disturbed areas.

After Operations:

1. All extraneous debris, scrap metal and wood, and unusable buildings will be removed from the site.
2. The mine portal and vent holes will be sealed to prevent unauthorized entry.
3. The developemental wasterock stockpile will be recontoured to a stable slope and the surrounding area will be contoured to prevent water ponding.
4. The water treatment ponds will be buried and left in a nonimpounding condition.
5. Stockpiled topsoil will be respread over the disturbed surfaces to the extent possible and all areas will be scarified, broadcast seeded with a diverse seed mixture, and drag covered.
6. All disturbed areas will be monitored and reseeded if necessary.

IMPACTS:

Since this area has been previously mined and is currently being mined, and since this area has a low productivity and esthetic value initially, any activity according to the mining and reclamation plan submitted by Energy Fuels Nuclear should have no significant impact.

SURETY ESTIMATE:

Reclamation surety for this operation was estimated to be \$35,923 which includes 5% inflation for the 15 year proposed mine life and the following:

1. Clean-up and removal of structures, equipment, trash, and debris.
2. Regrading and recontouring, resspreading of topsoil, and construction of waterbars on the access road.
3. Soil preparation and seeding, of 20 acres, and reseeding if necessary.
4. Sealing one portal and two vent holes.
5. Removal of explosives and hazardous materials.
6. Supervision.

APPLICATION HISTORY:

May 14, 1979

Division received application forms for the Sahara Mine by Energy Fuels Nuclear.

May 22, 1979

Division performed a field inspection of the proposed operation.

June 21, 1979

Division completed review and prepared surety estimate and executive summary.

DIVISION OF OIL, GAS, AND MINING
BOND ESTIMATE

OPERATOR: Energy Fuels Nuclear
MINE NAME: Sahara Mine
LOCATION: Sec. 15, T. 22 S., R. 14 E.
COUNTY: Emery
DATE: June 21, 1979

	Operation	Amount	Rate	Cost
A.	CLEAN-UP			
	1. Removal of structures & equipment.	Lump sum	\$1,000	\$1,000
	2. Removal of trash & debris.	Lump sum	\$ 500	\$ 500
	3. Leveling of ancillary facilities pads and access roads.	Included in B.		
B.	REGRADEING & RECONTOURING			
	1. Earthwork including haulage and grading of spoils, waste and overburden.	40 hours of cat time	\$85/hour	\$3,400.
	2. Recontouring of highwalls and excavations.	N/A		
	3. Spreading of soil or surficial materials.	20 hours of cat time	\$85/hour	\$1,700
C.	STABILIZATION			
	1. Soil preparation, scarification, fertilization, etc.	20 acres	\$25/acre	\$ 500
	2. Seeding or planting.	20 acres	\$150/acre	\$3,000
	3. Construction of terraces, water-bars, etc.	8 hours of cat time	\$85/hour	\$ 680
D.	LABOR			
	1. Supervision.	40 hours	\$10/hour	\$ 400
	2. Labor exclusive of bulldozer time.			
E.	SAFETY			
	1. Erection of fences, portal coverings, etc.	Sealing of 1 portal and 2 vent holes	\$1,000 ea.	\$3,000
	2. Removal or neutralization of explosive or hazardous materials.	Lump sum	\$ 100	\$ 100
F.	MONITORING			
	1. Continuing or periodic monitoring, sampling & testing deemed necessary.	Reseeding 20 acres if necessary	\$150/acre	\$3,000
			Subtotal	\$17,280
G.	OTHER 5% inflation for 15 year mine life	CAF = 2.0789		\$18,643
			Total	\$35,923

